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And Everlight Americas, Inc.

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
OAKLAND DIVISION

Everlight Electronics Co., Ltd.,

Plaintiff,

v.

Bridgelux, Inc.,

Defendant.

Bridgelux, Inc.,

Counterclaim Plaintiff,

v.

Everlight Electronics Co., Ltd. and Everlight Americas, Inc.,

Counterclaim Defendants.

Case Number: 4:17-cv-3363-JSW

OPENING CLAIM CONSTRUCTION BRIEF OF EVERLIGHT ELECTRONICS CO., LTD.

Dept: Courtroom 5, 2nd Floor
Judge: Hon. Jeffrey S. White

Complaint Filed: June 10, 2017
Am. Answer/Countercl. Filed: July 31, 2017

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I. INTRODUCTION

This case involves U.S. patent 6,335,548 (" '548 Patent") and 7,253,448 (" '448 Patent") (collectively, "Asserted Patents"). The Asserted Patents are filed herewith as Exhibits 1 and 2 to the Declaration of Steven Malin. Everlight asserts that certain Bridgelux products infringe '548 Patent claims 1, 2, 9, 10, 12, 15, 16, 17, 20, 22, 23, 24, and 26 (" '548 Patent Asserted Claims") and '448 Patent claims 1, 2, 3, 4, 5, 9, 10, 14, 16, 22, 24, 28, 30, 31, 32, 33, 34, 35, 39, 40, 42, 43, 44, 47, 48, 49, 50, 52, 53, 57, 59, 63, 64, 66, 67, 71, 73, 74, 75, 76, 77, 81, 83, 84, and 88 (" '448 Patent Asserted Claims") (collectively, "All Asserted Claims" or "Asserted Claims"). The Asserted Patents share a common priority date, originating application, and disclosure. For the purposes of brevity, only citations to the '548 Patent specification will be provided in this brief.

The Asserted Patents present a novel solution to a problem plaguing prior art semiconductor radiation emitter packages, such as LEDs. Heat and elevated temperatures may damage these devices, Ex. 1, '548 Patent at 3:42-62, 5:25-58, thus "compromising operational performance and reliability," Ex. 1, '548 Patent at 4:65 – 5:1. In the prior art, electrical leads were used both to connect an LED device to an electrical circuit, Ex. 1, '548 Patent at 2:46-55, and as a primary path to transfer heat out of that LED device, Ex. 1, '548 Patent at 5:1-15. However, the leads would just as easily transfer heat into the LED device when exposed to high temperatures during the soldering process, thereby damaging the LED device before it ever reaches a consumer. Ex. 1, '548 Patent at 3:23-62. One solution was to increase the thermal resistance of the leads—thereby discouraging the transfer of heat into the package during soldering. Ex. 1, '548 Patent at 4:45-61. However, this leaves the package with a diminished ability to dissipate its own heat during normal operation, Ex. 1, '548 Patent at 4:62 – 5:19, which ultimately limits the power and brightness of the device, Ex. 1, '548 Patent at 6:9-18. The Asserted Patents solve this seeming paradox by introducing a new element, the "heat extraction member," to the package design. Through a variety of design alternatives to lower thermal resistance, the heat extraction member replaces the lead as the dominant path of heat transfer out of the package, *see*, *e.g.*, Ex. 1, '548 Patent 9:19-27, allowing the leads to be designed with higher thermal resistance to protect the LED device during soldering. Because the leads are designed with high thermal resistance, the package and its contents are

protected from heat spikes during soldering of the leads. Also, because the heat extraction member has a low thermal resistance, the LED package efficiently dissipates heat during operation.

II. SUMMARY OF ARGUMENT

This brief will address the proper construction of five terms in the Asserted Patents. For each of the terms—"heat extraction member" / "heat extraction element," "electrical lead," "encapsulant," "low thermal resistance" / "high thermal resistance," and "semiconductor radiation emitter package"—Everlight proposes they be given their ordinary meaning as understood by a person of skill in the art ("POSITA"). If the Court believes one or more definitions is required, then Everlight proposes such definition come directly from the patent disclosure as many terms are given clear and ordinary definitions therein.

Not surprisingly, Bridgelux seeks to incorporate into these five claim terms numerous noninfringement and/or invalidity positions. In many cases these additional claim elements are aspects of specific embodiments; in other cases, Bridgelux's proposed claim elements appear nowhere in the patents and are created from whole cloth. Bridgelux's proposed elements suffer from many flaws, including: (1) contradicting the patent disclosures; (2) contradicting the Asserted Claims; (3) reading into all Asserted Claims features of preferred embodiments; (4) reading into all Asserted Claims features of a limited number of dependent claims; and (5) reading into all Asserted Claims elements that would entirely eliminate coverage by the Asserted Claims of numerous disclosed embodiments. In so proposing Bridgelux violates a number of accepted legal doctrines, as discussed more fully below.

Bridgelux also asserts that the claim term "heat extraction member" / "heat extraction element" is a means plus function claim pursuant to 35 U.S.C. § 112(f). As discussed herein, Bridgelux is incorrect, as this claim term in light of the specification is easily understood by a POSITA to denote a specific class of structures. Finally, Bridgelux contends that the claim preamble phrase "semiconductor radiation emitter package" should be construed as a claim limitation. As set forth below, case precedent shows that this term is not a claim limitation because the recited claim elements form a structurally complete invention without reference to the preamble, and that the latter is merely the purpose of the invention.

III. LEGAL STANDARDS

In construing disputed claim terms, "[w]e begin with the words of the claims themselves" for "it is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp*., 415 F.3d 1303, 1312, 1314-15 (Fed. Cir. 2005). Thus, the language of the claims themselves provides substantial guidance as to the meaning of particular claim terms. *Vitronics Corp. v. Conceptronic, Inc*., 90 F.3d 1576, 1582 (Fed. Cir. 1996). The Court's task is to give claim terms their ordinary and customary meaning as understood by one of ordinary skill in the art at the time of the invention. *Phillips*, 415 F.3d at 1312. "[T]he specification 'is always highly relevant to the claim construction analysis... [I]t is the single best guide to the meaning of a disputed term.'" *Id*. "The specification is, thus, the primary basis for construing the claims." *Standard Oil Co. v. Am. Cyanamid Co*., 774 F.2d 448, 452 (Fed. Cir. 1985).

"[A]lthough the specification may aid the court in interpreting the meaning of disputed language in the claims, particular embodiments and examples appearing in the specification will not generally be read into the claims." *Constant v. Advanced Micro-Devices, Inc*., 848 F.2d 1560, 1571 (Fed. Cir. 1988). "[A] particular embodiment appearing in the written description is not to be read into a claim if the claim language is broader than the embodiment." *Superguide Corp. v. DirecTV Enterprises, Inc*., 358 F.3d 870, 875 (Fed. Cir. 2003); s*ee E-Pass Techs., Inc. v. 3Com Corp*., 343 F.3d 1364, 1369 (Fed. Cir. 2003) (Claims are to be interpreted "in view of the specification without unnecessarily importing limitations from the specification into the claims.")

IV. CONSTRUCTION OF DISPUTED TERMS OF '548 AND '448 PATENTS

A. "heat extraction member" / "heat extraction element" (All Asserted Claims)

Everlight's Construction	Bridgelux's Construction
Ordinary meaning (i.e., a structure providing a primary path for the transfer of heat out of a device)	Bridgelux provides no construction, arguing instead that the term should be construed pursuant to 35 U.S.C. Sec. 112(6)

Heat extraction member / heat extraction element is a term easily understood by a POSITA and should be given its ordinary meaning. If a definition is appropriate, Everlight's proposed language is taken directly out of the patent specifications: "The heat extraction member 204 consists of a thermally conductive body…that provides a dominant path (distinct from the leads 205) to

transfer heat generated by the emitter of the device into the ambient environment." Ex. 1, '548 Patent at 9:19-24; *see also* Ex. 1, '548 Patent at 11:27-30 ("the heat extraction member 204 provid[es] a dominant low thermal resistance path out of the device"); Ex. 1, '548 Patent at 12:37-38 ("the dominant thermal path defined by the heat extraction member 204.")

Bridgelux asserts that the claim terms "heat extraction member" and "heat extraction element" are means-plus-function terms under 35 U.S.C. §112(f)) (§112 ¶ 6 in prior law). As these terms do not include the word "means," there is a rebuttable presumption that §112(f) does not apply. *Zeroclick, LLC v. Apple Inc.,* 891 F.3d 1003, 1007 (Fed. Cir. 2018). Importantly, the burden to overcome this presumption is on the challenger to show that the term (1) fails to "recite sufficiently definite structure" or (2) recites "function without reciting sufficient structure for performing that function." *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348-349 (Fed. Cir. 2015). A claim term will not be construed as means-plus-function if "the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure." *Zeroclick*, 891 F.3d at 1007. "To determine whether a claim recites sufficient structure, 'it is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function.'" *See Skky, Inc. v. MindGeek s.a.r.l.*, 859 F.3d 1014, 1019 (Fed. Cir. 2017) (quoting *TecSec, Inc. v. IBM*, 731 F.3d 1336, 1347 (Fed Cir. 2013)).

In the instant case, the terms "heat extraction member" and "heat extraction element" fairly describe a class of structures understood by a POSITA and they are not means-plus-function terms. First, the '548 Patent disclosure specifically uses the phrase "heat extraction member" in a definitional sense as the name for a class of structures associated with heat transfer: "The heat extraction member 204 consists of a thermally conductive body…that provides a dominant path (distinct from the leads 205) to transfer heat generated by the emitter of the device into the ambient environment." Ex. 1, '548 Patent at 9:19-24; *see Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996) ("Many devices take their names from the functions they perform."). (The '448 patent uses the term "heat extraction element" as a synonym for heat extraction member.) Twenty separate drawings are provided illustrating specific design and structural details of various

heat extraction members. Ex. 1, '548 Patent figs. 2, 3, 7a, 7b, 7c, 10, 12a, 12b, 12c, 16a, 17a, 17b, 17c, 19a, 19b, 20, 21, 22, 23, 24. The '548 Patent also discloses several pages of text discussing design criteria that may be used to vary and exploit the structural features of a heat extraction member. *See*, *e.g.*, Ex. 1, '548 Patent at 9:19-24 (material), 9:24-31 (heat transfer efficiency), 9:46-60 (dimensions), 9:61-67 (shapes), 9:67-10:6 (more materials), 10:7-42 (surface structure and materials), and 10:43-11:6 (additional design criteria for reducing thermal resistance). The '548 Patent specification illustrates how the heat extraction members connect with other components in the system, and how these components interact and perform the claimed function. Ex. 1, '548 Patent figs. 2, 3, 7a, 7b, 7c, 10, 12a, 12b, 12c, 16a, 17a, 17b, 17c, 19a, 19b, 20, 21, 22, 23, 24; Ex. 1, '548 Patent at 9:19-15:54. *Cf. Quanergy Sys. v. Velodyne Lidar, Inc.*, No. 16-cv-05251-EJD, 2017 U.S. Dist. LEXIS 164916, at *39-40 (N.D. Cal. Oct. 4, 2017) (holding a term as not means-plus-function because the specifications showed how the term structurally connected with other components and how the components interacted) (courtesy copy attached as Ex. 7).

Finally, in various locations, the patent specification discusses the heat extraction member in terms suggesting it represents a particular class of structures. For example, the specification discusses "some prior art devices where electrical leads may penetrate through a *heat extractor*" and then refers to heat extraction member 204 as "*this heat extractor*." Ex. 1, '548 Patent at 14:58-64 (emphasis added). Similarly, the patent specification discusses the "[a]dditional functions of the heat extraction member 204" which include "attaching or registering to adjacent components such as…secondary heat extractors." Ex. 1, '548 Patent at 11:46-54; *see also*, Ex. 1, '548 Patent at 22:55-58. This reference to "secondary" suggests that heat extraction member 204 is a "primary" heat extractor.

While Everlight believes that means-plus-function does not apply here, if the Court determines otherwise, then it is to perform a two-step process. *Williamson*, 792 F.3d at 1351. The Court must first "define the particular function of the claim limitation" from "limitations contained in the claim language." *In re Aoyama*, 656 F.3d 1293, 1296 (Fed. Cir. 2011). Here, the identified function of the claims at issue would be "heat extraction."

"Then, the court must determine what structure, if any, disclosed in the specification

corresponds to the claimed function." *Williamson*, 792 F.3d at 1351. "Structure disclosed in the specification qualifies as 'corresponding structure' if the intrinsic evidence clearly links or associates that structure to the function recited in the claim." *Id*. at 1352. "[Section] 112 ¶6 generally reads the claim element to embrace distinct and alternative described structures for performing the claimed function." *Ishida Co. v. Taylor*, 221 F.3d 1310, 1316 (Fed. Cir. 2000); *Micro Chem., Inc. v. Great Plains Chem. Co*., 194 F.3d 1250, 1258 (Fed. Cir. 1999) ("When multiple embodiments in the specification correspond to the claimed function, proper application of § 112, ¶6 generally reads the claimed element to embrace each of those embodiments."); *Serrano v. Telular Corp*., 111 F.3d 1578, 1583 (Fed. Cir. 1997) (rejecting limitation of structure corresponding to the claimed function to only one of the alternative structures in the specifications).

The Asserted Patents disclose numerous examples in its figures of corresponding heat extraction members/elements (e.g., Figs. 2, 3, 4, 7a, 7b, 7c, 8, 10, 16a, 16b, 17a, 17b, 18, 19a, 19b, 20, 21, 22, 23, 24). The '548 Patent specification also provides design criteria variations to the corresponding structures involving materials, heat transfer efficiency, dimensions, shapes, surface structure and coating materials, and design criteria for reducing thermal resistance. Ex. 1, '548 Patent at 9:8 – 12:25. For materials, the heat extraction member is "typically composed of metal but potentially composed of a thermally conductive ceramic or other material that provides the dominant path (distinct from the leads 205)," Ex. 1, '548 Patent at 9:20-23, and "may be composed of copper, copper alloys such as beryllium copper, aluminum, steel, or other metal, or alternatively of another high thermal conductivity material such as ceramic," Ex. 1, '548 Patent at 9:19-24. For certain disclosed embodiments specific thicknesses and lengths are proposed in a rectangular format to "yield a heat extraction member with a large cross-sectional area conducive to heat extraction." Ex. 1, '548 Patent at 9:46-60. For shapes and other structural designs: "[T]he heat extraction member 204 may be constructed with a generally elliptical, circular or other non-rectangular form and may be chamfered, or otherwise contain extensions, slots, holes, grooves and the like, and may incorporate depressions such as a collimating cup or other form to enhance optical performance." Ex. 1, '548 Patent at 9:61-67. Additionally, to reduce thermal resistance, "[p]ortions of the surface of the heat extraction member may be scored, textured, embossed," Ex. 1, '548 Patent at 10:7-8,

"may be coated with nickel, palladium, gold, silver, or other materials including alloys," Ex. 1, '548 Patent at 10:12-16, and "may be coated with nichrome, black oxide, or other high emissivity treatment to improve radiative cooling." Ex. 1, '548 Patent at 10:31-34. The specifications also disclose structural variations and criteria that accomplish the heat extraction function, Ex. 1, '548 Patent at 10:43-11:6, such as having a high cross-sectional area in one or more directions leading away from the semiconductor optical emitter, Ex. 1, '548 Patent at 10:58-60, having a short path length from the LED chip to the ambient environment, Ex. 1, '548 Patent at 10: 60-64, and structural details that increase the surface area of the heat extraction member, Ex. 1, '548 Patent at 10:64-11:1.

Should the Court determine that heat extraction member/element is means-plus-function, then the corresponding structure must include all of the disclosed variations in design and structure. Bridgelux's proposed corresponding structure of "heat extraction member/element 204 … the thermally conductive non-electrical lead portion of a leadframe" is erroneous for several reasons. First, Bridgelux's proposal ignores the numerous and varied heat extraction member designs and features disclosed in the patents and discussed above. Second, it defines the heat extraction member to be the same as an electrical lead, which is contradicted in numerous places in the patents as the elements "electrical lead" and "heat extraction member" are always disclosed and claimed as separate structures. *E.g.,* Ex. 1, '548 Patent at 9:19-12:24 (describing features of heat extraction member); 12:25-15:54 (describing features of electrical leads). Third, Bridgelux's proposal leaves out a number of disclosed embodiments not formed from leadframes. Ex. 1, '548 Patent at 30:65-31:54 and Fig. 24, for example, disclose an embodiment of the invention designed for use with cooling systems that employs a heat extraction member without reference to element 204 or requiring use of a leadframe. Ex. 1, '548 Patent at 20:15-49 discloses an embodiment of the invention for use with "flip chip" technology that employs a heat extraction member without reference to element 204 or a leadframe. In addition, several claims originally filed with the application that matured into the '548 Patent disclosed embodiments of the invention—including a heat extraction member—without requiring the use of a leadframe. Ex. 3 (original claims from Application 09/426,795); *Mentor Graphics Corp. v. EVE-USA, Inc*., 851 F.3d 1275, 1297 (Fed. Cir.

2017) ("Original claims are part of the original specification."). Because these multiple embodiments describe a heat extraction member without requiring a leadframe or element 204, requiring a leadframe or element 204 as the only corresponding structure would be inappropriate. Finally, Bridgelux's proposed corresponding structure of "non-electrical … portion of leadframe" is also inaccurate and ignores key embodiments clearly reflecting that the heat extraction member can be electrically active. For example, Ex. 1, '548 Patent at 19:31-35 states: "Electrical connection at the other end of the wire bond member 211 is established to … the heat extraction member…" Ex. 1, '548 Patent Figs. 2 and 7a similarly show an electrical connection to the heat extraction member. Bridgelux's requirement that heat extraction member is limited to a "non-electrical" structure ignores these key embodiments.

B. "electrical lead" (All Asserted Claims)

Everlight's Construction	Bridgelux's Construction
Ordinary meaning (i.e., an electrical conductor component for establishing an electrical connection between a device and an external electrical circuit such as a power source)	"a self-supporting electrically conductive portion of a leadframe stamped or otherwise formed from sheet metal for establishing an electrical connection between a semiconductor radiation optical radiation emitter and an external electrical circuit or source"

The Asserted Patents themselves define the term "electrical lead": "For purposes of the present invention, electrical leads 205 refers to a metallic, electrical conductor component primarily configured for the purpose of establishing electrical connection between the semiconductor optical radiation emitter 202 and an external electrical circuit such as a power source." Ex. 1, '548 Patent at 12:27-32. While Everlight believes that the ordinary meaning of electrical lead is sufficient, if a definition is appropriate Everlight's proposal most closely aligns with the Asserted Patents' own definition. Everlight's proposal also aligns with the dictionary definition of "lead," which is "a conductor, usually a wire, by which circuit elements or points are connected to components, devices, equipment, systems, points, or materials." Ex. 4, Steven M. Kaplan, WILEY ELECTRICAL AND ELECTRONICS ENGINEERING DICTIONARY 414 (2004).

Bridgelux, conversely, seeks to add several additional claim elements to the simple term "electrical lead." Bridgelux's position is unpersuasive because: (1) it ignores the definition of

electrical lead given in the patents; (2) the additional proposed elements expressly violate the Asserted Patents' disclosures and read out of the Asserted Claims numerous disclosed claim embodiments, and (3) it contradicts allowed claims of the patents and, independently, violates the doctrine of claim differentiation.

Bridgelux's first requested element is that the electrical lead be "self-supporting." The phrase "self-supporting" is nowhere used in the Asserted Patents' specifications or claims; rather, it is a term coined by Bridgelux's lawyers for this case. In addition, adoption of the "self-supporting" element would act to exclude from *all* of the Asserted Claims several disclosed embodiments of the invention. *See Medrad, Inc. v. MRI Devices Corp.,* 401 F.3d 1313, 1320 (Fed. Cir. 2005) ("A claim construction that does not encompass a disclosed embodiment is . . . rarely, if ever, correct.")

For example, the specifications disclose as one embodiment of the invention a heat extraction member connected to an electrical lead. *E.g.,* Ex. 1, '548 Patent figs. 2, 7a, 16a, 19b; Ex. 1, '548 Patent at 11:15-17 ("heat extraction member 204 is connected to or made integral with one or more of the electrical leads being soldered"). Similarly, Ex. 1, '548 Patent claim 2 includes an electrical lead as an integral part of the heat extraction member and claim 10 requires that the electrical lead and heat extraction element be "formed from an integral metal strip." In each of these embodiments, the electrical lead is "supported" by the heat extraction member/element and is thus *not "*self-supporting." Similarly, the Asserted Patents disclose embodiments with electrical leads that are supported by encapsulant, such as in '548 Patent figs. 2, 4, 8, 16b, 17a-c, 18, 19b, 21-24. Likewise, claims 52, 59, 76, 101, 120, and 123 of the '448 Patent each require that the encapsulant "retain" (i.e., support) the electrical leads. In each of these embodiments and claims, the electrical lead is "supported" by the encapsulant, and is thus *not* "self-supporting." Bridgelux's definition reads out of the claims each of these disclosed and claimed embodiments, which is "rarely if ever correct." *Medrad*, 401 F.3d at 1320.

Bridgelux next seeks to import into the broad concept of "electrical lead" one of the embodiments of the Asserted Patents, one that uses a "leadframe." This narrowing of the otherwise broad use of "lead" in the specifications and claims is improper. "[A] particular embodiment appearing in the written description is not to be read into a claim if the claim language is broader

than the embodiment." *Superguide*, 358 F.3d at 875; *see also Knowles Elecs. LLC v. Iancu*, 886 F.3d 1369, 1375 (Fed. Cir. 2018) (Refusing to incorporate elements of disclosed embodiment into otherwise broad claim language because (1) proposed element was specifically required in dependent claim and to insert element into independent claim would violate doctrine of claim differentiation and (2) patent disclosed at least one embodiment without the proposed element and the proffered construction would read that embodiment entirely out of the claims).

Here, there is no doubt that the patentee knew the difference between the terms "electrical lead" and "leadframe" and used each in different ways. '548 Patent claims 28-32 and 46-49 for example, specifically require as a claim element a "leadframe." However, the remaining Asserted Claims do not require a "leadframe." Moreover, the term "electrical lead" is defined in the patent, Ex. 1, '548 Patent at 12:27-32, and this definition has no requirement of being "a portion of a leadframe" or "stamped or otherwise formed from sheet metal." Rather, "electrical lead" is a general term meaning something that electrically connects two electrical components. To be sure, the Asserted Patents do disclose certain embodiments that include a leadframe stamped from sheet metal. *E.g.*, Ex. 1, '548 Patent at 25:6-8, 25:52-58. However, the disclosed invention is in no way limited to leadframes stamped from sheet metal. For example, the '548 Patent discloses: "Although electrical leads 205 are shown and described thus far as having a rectangular cross section, it should be understood that leads with a *circular* cross section, varying cross section, or other cross section shape are still within the scope and spirit of the present invention…" Ex. 1, '548 Patent 14:49-55 (emphasis added). Thus, the '548 Patent thus discloses an embodiment – leads with a circular cross section – that are impossible to fabricate with a stamped leadframe (which will result in rectangular shaped leads). A lead with a *circular* cross section is simply a wire, which falls within Everlight's construction of "lead" and is consistent with the dictionary definition of the term but is excluded in Bridgelux's construction.

Next, the '548 Patent specifically discloses that an "electrical lead" can be made of materials *other than metal*:

> The thin portion shall be used primarily for the formation of the electrical leads and the thick portion shall be used primarily to form the heat extraction

> member…
>
> …[T]he use of a metallic material for metal sections 1202 and 1201 is usually preferable but not mandatory. *Any electrically conductive material suitable for construction of the electrical leads 205 may be used for the thin metal section 1202...*

Ex. 1, '548 Patent at 25:6-38 (emphasis added); *see also* Ex. 1, '548 Patent at 25:47-5 ("[T]he construction of metal strip 1200 from one or more metallic *or possibly non-metallic materials* of uniform or varying thickness results in what will be defined to be an integral metal strip for the purpose of this invention.") (emphasis added). Bridgelux's proposal that all asserted claims be limited to electrical leads "stamped or otherwise formed of sheet metal" would read out of all Asserted Claims several disclosed non-metallic and/or non-stamped embodiments.

Moreover, '548 Patent claim 29 specifically provides "the leadframe formed by concurrently *stamping from an integral metal strip*." Bridgelux's proposed definition for "electrical lead" would require this element from dependent claim 29 to be present in all independent claims, which would violate the doctrine of claim differentiation. The '548 Patent claims also cover instances in which the lead is made from (1) the same material as the extraction member (dependent claim 34) and (2) a different material than the extraction member (dependent claim 35). Bridgelux's definition "leadframe stamped or otherwise formed of sheet metal" both (1) violates the doctrine of claim differentiation because it requires that independent claim 33 include the dependent claim 34 element of "composed of one continuous material," and (2) results in these claims being self-refuting, because independent claim 33 would require that the electrical leads and heat extraction member be formed of one material (sheet metal) while dependent claim 35 would require that the electrical leads and heat extraction member/element be made of "at least two materials." Bridgelux's proposal makes no sense.

Dependent claim 24 of the '448 Patent similarly refutes Bridgelux's definition, by specifically requiring that "the bulk of said electrical leads and said heat extraction member are composed substantially of the same material." Bridgelux' proposed definition of "leadframe stamped from or otherwise formed of sheet metal" would already require that "the bulk of …

electrical leads and said heat extraction member are composed of substantially the same material" – actually, it would require it be of exactly the same material. Because such a definition would render each of these dependent claim terms superfluous, it would once again violate the doctrine of claim differentiation.

C. "encapsulant" (All '548 Patent Asserted Claims; '448 Patent claims 1, 2, 3, 4, 5, 9, 10, 14, 16, 22, 24, 28, 30, 31, 32, 33, 34, 35, 39, 40, 42, 43, 44, 47, 48, 49, 50, 52, and 53)

Everlight's Construction	Bridgelux's Construction
Ordinary meaning (i.e., a material or materials that cover and protect the components of a device)	"a material or combination of materials that: (i) holds the leadframe together; and (ii) structurally integrates the semiconductor optical radiation emitter with the leadframe, with the entire outer surface of the material or combination of materials being hard"

The '548 Patent at 22:5-7 defines "encapsulant" as "a material or combination of materials that serves primarily to cover and protect the semiconductor optical radiation emitter 202 and wire bonds 211." Everlight believes that "encapsulant" need not be defined as it is readily understood in the art and by POSITAs. However, to the extent that "encapsulant" requires a definition, that given in the patents themselves provides the best guide – and this matches Everlight's proposed language: "a material or materials that cover and protect the components of a device." Again, Everlight's proposed language is consistent with how "encapsulant" is defined in technical dictionaries: "the coating of … an electronic component in a resin to protect it against the environment." Ex. 5, CHAMBERS DICTIONARY OF SCIENCE AND TECHNOLOGY 396 (1999).

Bridgelux again attempts to incorporate optional features of certain disclosed embodiments as a requirement of *all* claims of the Asserted Patents. First, Bridgelux (again) seeks to insert in the claim the requirement of a leadframe. For the reasons given in the previous section, Bridgelux's proposed language is improper: (1) when the patentee defined the relevant term in the specification it specifically omitted the requirement of a leadframe (*e.g.,* Ex. 1, '548 Patent at 12:27-32 (defining "electrical lead"); (2) certain Asserted Claims specifically require a leadframe (*e.g.*, Ex. 1, '548 Patent claims 28-32, 46-49, 62-64) while all other Asserted Claims do not; (3) the specification discloses several embodiments not reciting or requiring the use of leadframes (*e.g.,* Ex. 1, '548

Patent at 30:65-31:54 and Fig 24 (embodiment for use with cooling systems), Ex. 1, '548 Patent at 20:15-49 (embodiment for use with "flip chip" technology); Ex. 3 (originally filed claim 1)); and (4) the specification discloses configurations impossible with a leadframe (*e.g.,* having circular leads), Ex. 1, '548 Patent at 14:49-55.

Bridgelux's next proposed definition – that all claims require that the "encapsulant" "hold[] the leadframe together"—is similarly faulty. Putting aside for the present the requirement of a "leadframe," neither the specifications nor any of the claims require that the encapsulant "hold the leadframe together." For example, a number of disclosed embodiments show a unitary structure *not* held together by any encapsulant. Ex. 1, '548 Patent at 30:32-38 discloses (with added emphasis) "two isolated electrical leads 210 extend from one side of the encapsulant 203 with the heat extraction member 204 extending from the opposite side. A third integral electrical lead 209 extends from the heat extraction member 204. *The joint between the heat extraction member 204 and the integral electrical lead 209 occurs external to the encapsulant 203*." Thus, in this embodiment electrical lead 209 is wholly outside of the encapsulant and is "held together" (to use Bridgelux's language) by the heat extraction member and *not* by the encapsulant. Thus, Bridgelux's proposal would read this disclosed embodiment completely out of the claims. Such a reading is "rarely, if ever, correct." *Medrad*, 401 F.3d at 1320.

Bridgelux's proffered requirement that the encapsulation "hold the leadframe together" is equally belied by the Asserted Claims that read on leadframe design. For example, claim 57 of the '448 Patent contains, inter alia, a requirement of "two electrical leads" with no requirement that they be "held together" or retained by the encapsulant. '448 Patent claim 59, however, which depends from claim 57, requires "encapsulating a portion of said electrical leads so as to retain said electrical leads." Because claim 59 requires that the encapsulant retain (or "hold together") "said electrical leads," under the doctrine of claim differentiation that limitation cannot be read into independent claim 57 (which is what Bridgelux is proposing). Similarly, '548 Patent claim 47 requires the presence of "two or more electrical leads," but only requires that "one of said electrical leads [be] retained by said encapsulant." This claim thus covers the embodiment where some of the leads are retained by ("held together" by) the encapsulant but other leads are not. This claim

language directly contradicts Bridgelux's proposed construction, which would require that *all* leads in *all* claims be "retained by said encapsulant."

Bridgelux next seeks to mandate that the encapsulant "structurally integrate[] the semiconductor optical radiation emitter with the leadframe." Once again, Bridgelux's proposed definition contradicts the plain teaching of the patents and numerous Asserted Claims. For example, the specification teaches that "[t]he most common means of attachment of an LED chip 202 to the heat extraction member 204 is by the use of a special type of electrically conductive adhesive die-attach epoxy," Ex. 1, '548 Patent at 19:36-40, and that the chip can also be attached by soldering, *id*. at 19:44-47. The patent states further: "The die attach or solder bond 505 also retains the LED chip 202 in a registered fashion…" and "the die attach 505 serves only two primary functions-thermal coupling and structural retention or registration…" *Id.* at 62-64. Thus, the patents disclose that the chip is "retain[ed]" by the die attach epoxy or solder and that one function of the die attach is "structural retention" of the chip with the heat extraction member. To be sure, the Asserted Patent disclose one embodiment where the encapsulant "structurally integrates" the chip and the heat extraction member. Ex. 1, '548 Patent at 22:31-33. But as set forth above, in other embodiments, the "semiconductor radiation emitter" (i.e., LED chip) is "structurally integrated" via the die attach epoxy or soldering process rather than the encapsulant. Bridgelux's language imports into all Asserted Claims aspects of a preferred embodiment, which is improper.

Finally, Bridgelux seeks to insert into all Asserted claims the requirement that "the entire outer surface of the [encapsulant] material…be[] hard." Again, the patents themselves show the fallacy of Bridgelux's proposal. Ex. 1, '548 Patent at 22:19-22 provides that "[t]he encapsulant may include materials that are solid, liquid or gel at room temperature" and at 23:26-37 (with added emphasis) that "[t]he encapsulant 203 may comprise a heterogeneous mass of more than one material... For example, a stress relieving *gel* such as a silicone "glob top" may be placed over the emitter 202 and wire bonds 211. Such a localized stress relieving *gel* remains *soft and deformable*... A hard molding compound, such as an epoxy, *may* then be formed over the stress relieving gel to provide structural integration." *See also* Ex. 1, '548 Patent at 24:40-42. This teaching – that the encapsulant can be a "gel" that remains "soft and deformable" contradicts Bridgelux's proposal that

all encapsulants have "an entire outer surface … being hard." Bridgelux's proposal is equally belied by the patent teaching that "a hard molding compound … *may* then be formed over the stress relieving gel." The patents teach that the hard molding compound is optional, while Bridgelux would require that it be mandatory for all claims. Bridgelux's proposal would thus read out of the claims several disclosed embodiments, which is "rarely if ever correct." *Medrad*, 401 F.3d at 1320.

Bridgelux's proposed definition is similarly rebutted by the '548 and '448 Patent claims, which make clear that including a "hard molding compound" is only optional and not required for an encapsulant. For example, '448 Patent claim 1 requires an "encapsulant" but contains no requirement of a "hard molding compound." '448 Patent claim 40 (dependent from claim 1) requires that the encapsulant be made of "two different materials," and claim 42 (dependent from claim 40) requires that "one of said two materials is a stress relieving gel." There is no requirement in either '448 Patent claim 1, claim 40, or claim 42 that the encapsulant be a "hard molding compound" and it would be inappropriate to read that embodiment element into the claim. Rather, dependent claim 45 (which depends from claim 42) requires that one of the two materials be a "hard molding compound." Because '448 Patent claim 45 and its requirement of "hard molding compound" depends from claim 42 (which contains no such requirement and which, conversely, calls for a gel encapsulant), the doctrine of claim differentiation teaches that it is not appropriate to read the dependent claim element (hard molding compound) into the preceding claim (which does not include that requirement). '448 Patent claims 110, 113, and 147 all provide similar results.

The Asserted Patents disclose a great number of encapsulation technologies including hard compounds, soft gels, and liquids to maximize the value of the invention. Bridgelux's attempts to force this broad teaching and manifold granted claims into a tiny compartment in which *all* encapsulants are "hard" around "the entire outer surface" is contrary to law and should be rejected.

D. "low thermal resistance" / "high thermal resistance" (All Asserted Claims)

Everlight's Construction	Bridgelux's Construction
Ordinary meaning (i.e., the resistance of an object to heat flow; the modifiers "low" and "high" are comparative, to be interpreted relative to one another)	"Heat extraction member having a low thermal resistance" and "electrical lead having a high thermal resistance" should be construed together to mean: "(1) a heat extraction member (as defined herein) having a lower thermal resistance than an electrical lead (as

Everlight's Construction	Bridgelux's Construction
	defined herein) resulting from the heat extraction member and the electrical lead (i) being made from different materials with different thermal conductivities, or (ii) having different effective dimensions, and (2) an electric lead (as defined herein) having a higher thermal resistance than a heat extraction member (as defined herein) resulting from the electric lead and the heat extraction member (i) being made from different materials having different thermal conductivities, or (ii) having different effective dimensions." An "effective" dimension is determined by the boundary conditions which are undefined in the specification

The specifications of the Asserted Patents along with the plain claim language make clear to a POSITA that "thermal resistance" means the resistance of an object to heat flow. The specifications and claims further make clear that, according to the invention, the heat extraction member is intended to be the dominant path for heat transfer out of the package, and the leads are intended to be a minor thermal path out of the package. Thus, the specification and claims describe the heat extraction member as having "low thermal resistance" and the leads as having "high thermal resistance." The only requirement is a comparison of the thermal resistance between the heat extraction member and the lead. If the thermal resistance of the heat extraction member is less than that of the lead—meaning that more heat travels through the heat extraction member than through leads—the claim element is met.

As used in the Asserted Patents, "thermal resistance" is used in its ordinary sense – the resistance of an object to heat flow. For example, in the Background of the Patents it is stated at Ex. 1, '548 Patent at 4:45-51: "The most common compromise used to get around the transient temperature rise problem associated with soldering is to simply increase the thermal resistance of the electrical leads used in the device construction. By increasing the thermal resistance of these solderable leads, the heat transient experienced within the device body during soldering is minimized." Thus, "thermal resistance" is a quality that, when increased, decreases the flow of heat and, conversely, when decreased, increases the flow of heat. And it is the manipulation of thermal

resistance of the heat extraction member and leads that is presented by the Asserted Patents: "Indirect dampening of temperature extremes from soldering of electrical leads 205 is accomplished by the heat extraction member 204 by providing a dominant low thermal resistance path out of the device 200 which is substantially independent of the thermal path represented by the electrical leads. This allows the electrical leads 205 to be constructed with relatively high thermal resistance without compromising LED operational performance." Ex. 1, '548 Patent at 11:27-34. This inventive design of the heat extraction member providing the dominant path for heat flow as compared to the leads "very effectively protect[s] against thermal transients traveling up the electrical leads 205 during soldering," *id*. at 11:37-42, and "reduces the temperature extreme that would otherwise be reached within the device encapsulant 203," *id.* at 11:42-45. The Asserted Patents again reinforce this inventive concept: "Electrical leads 205 also provide a secondary thermal path out of the device, which is minor compared with the dominant thermal path defined by the heat extraction member 204. In fact, the minor thermal path formed by the leads 205 preferably possesses a high thermal resistance in order to isolate the device from thermal damage during soldering." *Id*. at 12:38-41.

Importantly, in using the phrases "thermal resistance," "low thermal resistance," and "high thermal resistance" in the Asserted Claims, the inventors did not limit the technique used to increase or decrease "thermal resistance" to any particular method. The '548 Patent specification does provide example techniques, stating at 10:50-11:6 and 9:20-23 that the heat extraction member can accomplish low thermal resistance by a combination of one or more attributes: (1) construction using high thermal conductivity material (thermal conductivity being the opposite of thermal resistance) or "other material that provides the dominant path (distinct from the leads 205)"; (2) construction with a substantially high cross-sectional area leading away from the LED; (3) construction with a relatively short path length from the LED to the ambient environment or other structures; (4) construction employing a high surface area (e.g., using cooling fins); and (5) treatment of surfaces exposed to air with certain textures or finishes (e.g., using a black finish).

The Asserted Patents also disclose multiple techniques to increase the thermal resistance in the electrical leads including low cross-sectional area, low thermal conductivity materials, and

increasing the length of the lead. '548 Patent at 4:45-57. For example, the Asserted Patents suggest that the electrical leads should be about 1/3 to 1/4 the thickness of the heat extraction member to increase their thermal resistance as compared to the heat extraction member. *Id.* at 13:7-23. Yet another technique disclosed in the Asserted Patents to increase the thermal resistance of the electrical leads as compared to the heat extraction member is physically separate (or "isolate") the electrical lead from the heat extraction member: "All electrical leads are isolated electrical leads 210 to maximize the thermal resistance from the circuit board, through the leads, and to the emitter." *Id*. at 29:65-67.

While the phrases "thermal resistance," "low thermal resistance," and "high thermal resistance" in the independent Asserted Claims do not require any particular technique, certain dependent claims specify certain techniques. For example, technique (1) above is found in '448 Patent dependent claim 32, which requires that the heat extraction member be made of "a material having a substantially high thermal conductivity" while dependent claim 33 recites that such material be "selected from a group consisting of copper, copper alloys, aluminum, soft steel or other metal." Technique (2) above is found in '448 Patent dependent claim 30 which requires that the "cross-sectional area" of the electrical leads be smaller than that of the heat extraction member and, alternatively, in '548 Patent claim 11, which requires that the "heat extraction member is constructed with a thick cross-sectional area … relative to the thickness of the electrical leads." Technique (3) above is found in '448 Patent dependent claim 34 which requires that the thermal path from the LED chip to the outside portion of the heat extraction member be "shorter than the thermal path" from the LED chip to the location where the leads exit the encapsulant. Technique (4) above can be found in '448 Patent dependent claim 9 which requires that the "heat extraction member comprises at least one of fins, slots and holes." Technique (5) above can be found in '448 Patent dependent claims 35-37 which require that "said heat extraction member is coated with a coating material having improved thermal emissivity (claim 35) such as nichrome or black-oxide (claim 36) or where the heat extraction element is textured (claim 37).

Because each of these techniques is called for by a dependent claim, under the doctrine of claim differentiation it would be improper to read those limitations into the related independent

claims. In other words, while the Asserted Patents disclose and specifically claim many separate techniques to manipulate thermal resistance, the phrases "thermal resistance," "low thermal resistance," and "high thermal resistance" themselves are not limited to just those disclosed techniques.

Bridgelux's proposed construction of "low thermal resistance" and "high thermal resistance" comprises a whopping 130 words, completely ignoring substantial teachings of the patents and paying no heed to the simple, broad words of the claims. As an initial matter, though the Asserted Patents disclose at least five separate techniques for manipulating thermal resistance as discussed above, Bridgelux's proposed definition only includes two: different materials or different dimensions, and these two proposals add requirements not found in the patents. Inexplicably, Bridgelux ignores the techniques (3)-(5), that of short thermal path, increased surface area, and treatment of surfaces with textures or coatings. For this reason alone Bridgelux's proposed definition should be rejected. Additionally, Bridgelux's requirement that the materials or dimensions between the electrical leads and heat extraction member be "different" is not required by the claim terms "low thermal resistance" or "high thermal resistance" or by the patents.

At best, Bridgelux is incorporating into *all claims of both Asserted Patents* certain elements of two disclosed embodiments, even though the claim language of "low/high thermal resistance" is broad and contains no such limitations. Indeed, Bridgelux's definition would read out of all Asserted Claims at least three specifically disclosed embodiments, which is "rarely if ever correct." *Medrad*, 401 F.3d at 1320. Bridgelux's definition is confusing and incorrect, essentially emasculating numerous disclosed and claimed aspects of the invention; it is a naked noninfringement stratagem and would provide no benefit to the fact finder.

Finally, Bridgelux introduces as a claim element a term discussed nowhere in the Asserted Patent disclosures or claims: "Effective dimensions." The reason Bridgelux coined the phrase is to create a "straw man" that it could then knock down. Thus, Bridgelux argues that its coined term "effective dimensions" is "determined by the boundary conditions which are undefined in the specification." This proposed language is completely untethered to any teachings in the patents or to any claim in either patent. Bridgelux's attempt to invalidate the Asserted Patent by inventing the

element "effective dimension" and then asserting that that concept is mathematically invalid is bizarre and unpersuasive.

The meaning of thermal resistance—that is, resistance to heat flow—is abundantly clear from the intrinsic record. In addition, technical dictionaries define "thermal resistance" in exactly the same way as used in the Asserted Patents and proposed by Everlight. For example, Ex. 6, McGraw-Hill Dictionary of Scientific and Technical Terms 2132 (6th Ed. 2003) defines "thermal resistance as "A measure of a body's ability to prevent heat from flowing through it." Similarly, Ex. 5, Chambers Dictionary of Science and Technology 1161 (1999) defines "thermal resistance" as "resistance to the flow of heat."

E. "semiconductor radiation emitter package" (All Asserted Claims)

Everlight's Construction	Bridgelux's Construction
Construction of this preamble term is not required. To the extent a construction would be helpful, the term should be given its ordinary meaning (i.e., an encapsulated LED device)	"a leadframe supporting a semiconductor optical radiation emitter and an encapsulant structurally integrating the semiconductor optical radiation emitter with the leadframe, where the leadframe is a heat extraction member and a plurality of electrical leads formed from sheet metal"

"In general, a preamble limits the [claimed] invention if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim." *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002). "Conversely, a preamble is not limiting 'where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.'" *Catalina Mktg.*, 289 F.3d at 808; *Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003); *Schumer v. Lab. Computer Sys., Inc.*, 308 F.3d 1304, 1310 (Fed. Cir. 2002); *Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.*, 246 F.3d 1368, 1373-74 (Fed. Cir. 2001). Thus, "a preamble is not regarded as limiting . . . 'when the claim body describes a structurally complete invention such that deletion of the preamble phrase does not affect the structure or steps of the claimed invention.'" *Tom Tom, Inc. v. Adolf*, 790 F.3d 1315, 1324 (Fed. Cir. 2015); *Am. Med. Sys., Inc. v. Biolitec, Inc.*, 618 F.3d 1354, 1358-59 (Fed. Cir. 2010).

Everlight believes that the preamble phrase "semiconductor radiation emitter package" is not limiting. As described in *Catalina Marketing* and its progeny, the Asserted Claims describe

structurally complete inventions, with each claim defining exactly which elements are included in that particular invention variation. The preamble phrase "semiconductor radiation package" is the intended use for the inventions. '548 Patent claim 1 provides a good example. That claim requires in summary form: (1) a heat extraction member with low thermal resistance; (2) a semiconductor radiation emitter in contact with the heat extraction member; (3) an electrical lead with high thermal resistance coupled to an anode of the semiconductor radiation emitter; (4) a second electrical lead with high thermal resistance coupled to a cathode of the semiconductor radiation emitter; and (5) a substantially transparent encapsulant covering portions the emitter, two leads, and heat extraction member. As described throughout the patents, these elements combine to form a functionally complete, working LED device. Nothing from the preamble phrase "semiconductor radiation emitter package" is required for the claimed structure; rather, the claimed structures all together form and constitute the "semiconductor radiation emitter package," showing that the preamble phrase is simply the label applied to the finished collection of elements and that deletion of the preamble "does not affect the structure … of the claimed invention." For these reasons, the preamble is not limiting.

Bridgelux's proposed language for the preamble is a rehash of the same noninfringement arguments Bridgelux proposes for other claim definitions. Each of these arguments is faulty and should be rejected for the reasons discussed previously for each element.

First, Bridgelux (again) seeks to insert in the claim the requirement of a leadframe. For the reasons given in III.B. supra, Bridgelux's proposed language is improper: (1) when the patentee defined the relevant term in the specification it specifically omitted the requirement of a leadframe, *e.g.*, Ex. 1, '548 Patent at 12:27-32 (defining "electrical lead"); (2) certain Asserted Claims specifically require a leadframe, *e.g.,* Ex. 1, '548 Patent claims 28-32, 46-49, 62-64, while all other Asserted Claims do not require a leadframe; (3) the specification discloses several embodiments not reciting or requiring the use of leadframes, *e.g.,* Ex. 1, '548 Patent at 30:65-31:54 and Fig 24 (embodiment for use with cooling systems), Ex. 1, '548 Patent at 20:15-49 (embodiment for use with "flip chip" technology); Ex. 3 (originally filed claim 1); and (4) the specification discloses configurations impossible with a leadframe (*e.g.*, having leads with a circular cross section – i.e., a wire), Ex. 1, '548 Patent at 14:49-55.

Second, Bridgelux seeks to insert the requirement that the "encapsulant structurally integrat[e] with the leadframe." As discussed supra at III.C., Bridgelux's proposed definition ignores key patent teachings. For example, the patents disclose an embodiment in which the LED chip is attached to the heat extraction member by either die attach epoxy or solder. Ex. 1, '548 Patent at 19:36-40, 19:44-47. The specification explains that these attachment methods "retain[] the LED chip 202 in a registered fashion…" and have the function of "structural retention." *Id*. at 62-64. Thus, in these embodiments, the LED chip is "structurally integrated" with the heat extraction member by die attach epoxy or solder, and *not* by encapsulant. Placing this requirement into the preamble would act to exclude from all claims the discussed embodiments, which is "rarely if ever correct." *Medrad*, 401 F.3d at 1320.

Finally, Bridgelux seeks to have the preamble contain the claim element that "the leadframe is a heat extraction member and a plurality of electrical leads formed from sheet metal." For the reasons discussed at III.B. supra, Bridgelux's proposal is unpersuasive. First, the term "electrical lead" is defined in the patent, Ex. 1, '548 Patent at 12:27-32, and this definition has no requirement of being "a portion of a leadframe" or "stamped or otherwise formed from sheet metal." Second, the '548 Patent at 14:49-55 specifically discloses an embodiment – leads with a circular cross section – that are impossible to fabricate with a stamped leadframe (which will result in rectangular shaped leads). Third, the '548 Patent specifically discloses that a "lead" can be made of materials other than metal. Ex. 1, '548 Patent at 25:3-13; *see also* Ex. 1, '548 Patent at 25:47-5. Fourth, '548 Patent claim 29 specifically provides "the leadframe formed by concurrently stamping from an integral metal strip." Bridgelux's proposed definition for "lead" would require this element from dependent claim 29 to be present in all independent claims, violating the doctrine of claim differentiation. Fifth, the '548 Patent claims cover instances in which the lead is made from (1) the same material as the extraction member (dependent claim 34) and (2) a different material than the extraction member (dependent claim 35). Bridgelux's definition means that independent claim 33 would already require that the leads and heat extraction member be formed of one material (sheet metal), rendering dependent claim 34 superfluous and violating the doctrine of claim differentiation. Bridgelux's proposal would also require that the leads and heat extraction member of independent claim 33 be

made of one material (sheet metal) while dependent claim 35 would require that the heat extraction member and leads be made of two materials, which is impossible.

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Respectfully submitted, as to objections,

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CERTIFICATE OF SERVICE

I hereby certify that the foregoing document was filed with the Court's CM/ECF system which will provide notice on all counsel deemed to have consented to electronic service. All other counsel of record not deemed to have consented to electronic service were served with a true and correct copy of the foregoing document by electronic mail on this day.

Dated: August 3, 2018

Respectfully submitted,

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